INFORMATION LETTER

Not for Publication — NATIONAL CANNERS ASSOCIATION — For Members Only

No. 1274 — Washington, D. C. — February 25, 1950

N.C.A. Addresses Navy

In response to an invitation, Howard R. Smith of the N.C.A. Washington Research Laboratory addressed a group of 96 Supply Corps officers of the Naval Reserve on February 20 on storage and handling, and utilization of canned foods. The meeting was held at the Navy Department, Washington, D. C.

Mr. Smith first discussed storage and handling problems such as the effects of extremes of temperature and special packaging for particular shipments. The second part of the lecture was introduced with the showing of the American Can Company's sound color motion picture, "Vitamin Rivers." Mr. Smith then spoke on nutritive values and utilization of canned foods.

Interest in the discussion was evidenced by a great many questions, covering such subjects as container sizes, leaving food in an opened can, can openers, and the preparation of foods for serving. The supply officers picked up copies of N.C.A. materials which were made available. This material included background information on the industry and its products and specific data on nutritive value of canned foods.

Tennessee-Kentucky Canners

Shell R. Clevenger of Bush Brothers & Co., Dandridge, Tenn., retired from the presidency of the Tennessee-Kentucky Canners Association last week following nine years of service, including the war years, as leader of that association. A new slate of officers was elected at the association's annual convention.

C. Hays Hollar, who had served eight years as secretary of the association, was elected vice president for 1950. The officers elected by the Tennessee-Kentucky Canners Association for 1950 are:

President—William Martin, American Syrup & Preserving Co., Nashville, Tenn.; vice president—C. Hays Hollar, Hollar Canning Co., Newbern, Tenn.; and secretary-treasurer—H. L. W. Hill, Tennessee Foods, Inc., Portland, Tenn.

Canning Wastes

Canners are asked to respond to the questionnaire on cannery waste enclosed with this issue of the INFORMATION LETTER. The questionnaire seeks to determine current waste disposal research projects. This compilation will assist the N.C.A. in following work being done on cannery waste treatment, so as to enable the Association to better render service to its members.

U. S. Standards for Beans

Notice is given in the *Federal Register* of February 17 that the Production and Marketing Administration, USDA, is considering the revision of U. S. standards for beans, which have been in effect since September, 1941.

The revisions are designed to make the standards conform more closely with production practices, methods of marketing and processing beans, and consumer requirements.

The proposed revision will eliminate the special grades for handpicked beans and substitute in lieu thereof an Extra No. 1 grade for all classes of beans. This Extra No. 1 grade will represent beans of exceptionally high quality suitable for use by the packaging industry. Changes are proposed in the grade requirements for blackeye beans, cranberry beans and pinto beans to bring them in line with current production and marketing practices.

Interested parties may have until March 20 in which to submit data, views or arguments for consideration in connection with the proposed revisions. The proposed revision was published in the *Federal Register* of February 17 with the notice.

1949 Pack of Canned Beets

The 1949 pack of canned beets is reported by the Association's Division of Statistics at 7,922,938 actual cases, as compared with the 1948 pack of 4,601,651 cases. The pack by states is tabulated on page 111.

New York City Business Tax

A bill introduced in the New York State legislature last week would repeal that part of the state law which authorizes New York City to assess and collect a business privilege tax from companies which ship goods into the city without maintaining any office or sales force there.

The measure is known as Senate Introductory 1751. It has the support of the Association of New York State Canners, Inc., and of other trade groups in New York State, and from the standpoint of the industry is generally regarded as a satisfactory solution to the New York City tax problem.

The New York City Gross Receipts Tax is described in the INFORMATION LETTER of January 8, 1949, page 2; February 26, 1949, page 127; and May 24, 1949, page 213.

USES Distributes N.C.A. Report

The report of Luke F. Beckman as Chairman of the Association's Manpower Committee to the N.C.A. Board of Directors has been reproduced by the Farm Placement Service of the U. S. Department of Labor and has been sent to all field and regional farm placement representatives as part of the USES *Farm Labor Newsletter*.

The report was first reproduced in the Convention Issue of the INFORMATION LETTER, page 78.

Farm Income in 1949

The nation's farm operators realized 17 percent less net income from farming in 1949 than in 1948, according to preliminary estimates of the Bureau of Agricultural Economics, USDA.

The realized net income for 1949 was reported at $13,812,000,000, compared with the 1948 total of $16,743,000,000. This decline, together with a smaller drop in 1948, brought the total realized net income of farm operators down 22 percent from the 1947 record high of $17,794,000,000.

PROCUREMENT

Procurement of Army Foods

Maj. Gen. Herman Feldman, The Quartermaster General of the Army, recently addressed a luncheon meeting of the Food Group, comprised of trade association and other food industry representatives in Washington, D. C., on "Procurement of Army Foods." Because of the pertinency of General Feldman's remarks to current canning industry procurement problems, his remarks are reproduced.

One of the principal questions from industry is, "Why doesn't the Army take advantage of a 'bargain' when an item is in plentiful supply and selling at or below production cost?" The answer is that the Army will take advantage of a bargain, if the item meets specifications, is offered by a responsible bidder at the lowest competitive price, and is offered when replenishment of stocks is indicated.

It should be understood that the Army is not a price support agency, and it is not permitted to speculate with government funds.

Some background information will be helpful at this point to explain the Quartermaster Corps' purchase scheduling, and the reasons why such procedures cannot be quickly revised to snap up "bargains."

Army menus, both in the continental United States and in overseas commands, are planned at least six months in advance of actual consumption to permit adequate time for purchase and shipment of food to the most isolated oversea station. Prior to the time these menus are approved, consideration is given to the troop acceptability of all items, their nutritional adequacy, and the normal supply availability of each item. It is important to note that menus are varied to avoid monotony in diet and as a result, all major food groups have a place in Army supply planning.

Therefore, a "bargain" purchase which might on its face save government funds would require a commensurate reduction in consumption of another item required for a balanced menu, and which item currently is in our pipeline. Furthermore, any apparent savings might easily be dissipated because of the administrative work involved in the multiple revision of menus and necessary adjustment to oversea requisitions, most of which must be prepared four months prior to receipt of food and consumption.

The Army must do its supply planning and initiate its purchase actions well in advance of actual consumption. If the Army were to do otherwise and wait for "bargain" purchases, the health and morale of military personnel might well be impaired.

The second question frequently propounded by industry relates to action taken by the Quartermaster Corps in the standardization of items, packaging, and packing. It has been a continuing policy of the Army and the Quartermaster Corps since V-J Day to bring subsistence purchasing as closely in line with commercial practice as possible. The policy is to eliminate, wherever possible, special formulae, packaging, and packing for food items; and to revise specifications to conform to industry practices.

The purpose of this policy is to permit the supply of Army requirements from the standard production lines of industry without the delays and expense incident to a "change over" of equipment, special processing techniques, and purchase of special supplies.

The desired result of this policy is to enable the Army to receive responsive and competitive bids from a greater number of food processors, particularly from the small processor, and thereby decrease the cost of subsistence supplies to both the Army and the taxpayer.

It should be pointed out that necessary military characteristics are incorporated into the specifications for our operational rations and that changes to such specifications are limited by the intended use, and the size, shape, and weight of the package, which has been proven by test to be most practicable for the purpose. With this exception, a continuous and all-out effort is being made to conform to industry practices insofar as practicable.

The accomplishment of this objective has been greatly facilitated by the generous contributions to the Quartermaster Corps of time and technical advice by the food associations. Since these associations represent the know-how of industrial food processing and packaging techniques, the Quartermaster Corps has felt free to ask for their assistance. The response and results have been most gratifying, and it is felt that lasting benefits will accrue to both the members of the associations and the Quartermaster Corps through a better understanding of each other's problems.

A third question that is constantly put to the Quartermaster Corps is in the form of a request for advance information on purchase requirements and quantities.

Requests for such information are a continuous source of correspondence and visits from industry. The statutes and regulations governing the issuance of purchase information are very clear and precise. The spirit and intent is to give each supplier, both small and large, exactly the same information at exactly the same time as his competitors. This is accomplished by the mailing of an invitation to bid, or a letter of intent to purchase, simultaneously, to all suppliers who have indicated their interest and asked that their names be placed on the mailing list to receive these notices. This insures fair and equal treatment to all elements in an industry.

The withholding of purchase information until it can be given to an entire industry at the same time, is not to be construed as reluctance on the part of the Quartermaster Corps to give industry planning information, but rather as a proper administration of the public laws and regulations under which Army purchase of subsistence is made.

It is important to note at this point that press releases, which appear periodically in public print, contain only current estimates of expected food requirements, and should not be construed as a commitment by the Quartermaster Corps to purchase the items and quantities specified therein.

The items and quantities of food to be purchased are subject to change, and are based on the fact that troop strengths, troop acceptability, and military appropriations vary from one year to the next.

The impact of these factors on supply planning are illustrated by the situation that existed on V-J Day and the months which followed:

As of V-J Day our supply planning was still geared to an Army of approximately 8,000,000 men, with a food requirement of 40,000,000 pounds daily. Suddenly we were faced with a problem of excesses and the necessity for cancellation of contracts due to the rapid reduction in the size of the Army. Some of the excesses that developed required two or more years to consume, and the Quartermaster Corps was out of the market for such items during that time.

The effect of more frequent issues of items in long supply had to be weighed before establishing new requirements. Although we are not anticipating the repetition of conditions which will require an 8,000,000-man Army, we constantly have to consider the problem of troop acceptability and the effect of changing troop strength.

Another limiting factor on requirements is the amount of funds appropriated for food purchases. Congress properly limits such funds to the amount of money required to provide consumption requirements and pipeline quantities, less assets. Since budget planning must be completed well in advance of actual purchase, changed market conditions at time of purchase may require revision of prior estimates to remain within authorized appropriations.

It is not meant to infer that Congress would deny additional funds if assets and appropriated funds are insufficient to provide an acceptable and nutritionally balanced diet to troops, but rather to state that it is the policy of the Quartermaster Corps to avoid a deficiency appropriation except in emergency.

Another factor which has caused frequent revision of requirements since 1945 is the emphasis which the Army has placed on the supply to troops of the maximum number of perishable foods, to the end that we have the best fed Army in the world. This has meant that as soon as adequate refrigerated storage and transportation facilities were available in oversea commands and for ocean transportation, our purchasing and supply techniques had to be revised to furnish an ever-increasing variety and quantity of perishable items with a commensurate reduction in non-perishables.

Since we are the largest food caterers in the world, and since our youthful cosmopolitan customers have varied and continually changing tastes, it can be readily understood that our requirements for foods are also subject to constant change.

Invitations for Bids

Quartermaster Purchasing Offices—111 East 16th Street, New York 3, N. Y.; 1819 West Pershing Road, Chicago 9, Ill.; Oakland Army Base, Oakland 14, Calif.

Veterans Administration—Procurement Division, Veterans Administration, Wash. 25, D. C.

The Walsh-Healey Public Contracts Act will apply to all operations performed after the date of notice of award if the total value of a contract is $10,000 or over.

The QMC has invited sealed bids to furnish the following:

CANNED MUSHROOMS (Fancy)—1,392 1-lb. cans, f.o.b. destination. Bids due at Oakland under Bid No. QM-04-493-50-123 by Feb. 28.

TOMATO PASTE (Fancy)—864 No. 10 cans, f.o.b. destination. Bids due at Oakland under Bid No. QM-04-493-50-123 by Feb. 28.

CANNED CRAB MEAT—1,200 16-oz. cans, f.o.b. destination. Bids due at Oakland under Bid No. QM-04-493-50-123 by Feb. 28.

CANNED SHRIMP—2,784 No. 1 cans, f.o.b. destination. Bids due at Oakland under Bid No. QM-04-493-50-123 by Feb. 28.

CONDENSED SOUPS—1,360 doz.n 10½-oz. cans of condensed chicken soup and 1,360 dozen 10½-oz. cans of condensed tomato or cream of tomato soup, f.o.b. origin. Bids due at Chicago under Bid No. QM-11-183-50-584 by March 20.

CANNED POTATOES—2,040 dozen No. 2½ cans of white potatoes and 680 dozen No. 2½ cans of sweetpotatoes (Fancy), f.o.b. origin. Bids due at Chicago under Bid No. QM-11-183-50-593 by March 20.

STATISTICS

Wholesale Distributor Stocks of Canned Foods

A summary showing February 1 stocks in the hands of wholesale distributors, including warehouses of retail food chains, has been compiled by the Bureau of the Census. This preliminary release will be followed by a more comprehensive report to include February 1 canners' stocks, carryover, pack, and shipments. The wholesale stock were reported as follows:

Wholesale Distributors Stocks of Specified Canned Foods

(Includes Warehouses of Retail Food Chains)

Commodity	Total		All sizes smaller than No. 10		Institution sizes, all sizes No. 10 or larger	
	Feb. 1	Jan. 1	Feb. 1	Jan. 1	Feb. 1	Jan. 1
	(thousands of actual cases)					
Vegetables:						
Beans, Green and Wax	3,806	4,033	2,984	3,210	822	823
Corn	6,390	6,963	5,815	6,385	575	578
Peas	5,589	6,196	4,974	5,490	615	706
Tomatoes	4,986	5,473	4,218	4,652	768	821
Fruits:						
Apricots	942	988	775	813	167	175
Fruit cocktail [1]	1,685	1,815	1,473	1,597	212	218
Peaches	4,478	4,857	3,797	3,983	681	874
Pears	1,045	1,131	869	952	176	179
Pineapple	4,335	4,221	4,045	3,719	290	502
Juices:						
Tomato [2]	2,990	3,371	2,820	3,169	170	202
Grapefruit	1,030	484	1,014	476	16	8
Orange	1,827	1,204	1,800	1,182	27	22
Citrus blend	608	402	602	398	6	4
Pineapple	1,768	1,805	1,726	1,857	42	38

[1] Includes fruit for salad and mixed fruits (except citrus). [2] Includes also vegetable juice combinations containing at least 70 percent tomato juice.

Stocks and Shipments Of Canned Peas and Beets

Reports on canners stocks and shipments of canned peas and canned beets have been compiled by the Association's Division of Statistics, and detailed reports on these canned foods have been mailed to all canners packing these items.

Canned Pea Stocks and Shipments

	1948–49	1949–50
	(actual cases)	
Carryover, June 1	7,809,928	4,985,141
Pack	24,446,054	24,944,874
Total supply	32,255,982	29,930,015
Stocks, Feb. 1	12,590,200	9,873,981
Shipments during Jan.	2,290,847	2,258,621
Shipments, June 1 to Feb. 1	19,665,782	20,056,034

Canned Beet Stocks and Shipments

	1948–49	1949–50
	(actual cases)	
Carryover, July 1	222,516	64,712
Pack	4,601,651	7,922,938
Total supply	4,824,167	7,987,650
Stocks, Jan. 1	1,467,309	3,728,608
Shipments, July 1 to Jan. 1	3,356,858	4,259,042

Canned Baby Food Statistics

Details of the canned baby food supply, stock and shipment situation, as reported by the Association's Division of Statistics, are presented below:

	1949	1950
	(thousands of dozens)	
Canner stocks, Jan. 1	53,782	55,341
Pack, Jan.	10,112	9,707
Supply	63,894	65,048
Canner stocks, Feb. 1	53,427	54,065
Canner shipments, Jan.	10,467	10,983

1949 Pack of Canned Beets

	1948	1949
	(actual cases)	
New York	1,312,830	2,214,601
Maryland	(a)	126,995
New Jersey	168,657	(a)
Indiana	(a)	(a)
Michigan	206,969	344,812
Wisconsin	2,043,461	3,306,248
Utah	12,031	30,752
Oregon-Washington	486,631	1,024,171
Other States	371,072	875,359
U. S. total	4,601,651	7,922,938

(a) Included in other states. By can size, the 1949 pack included 3,488,448 cases of 24/2's, 207,319 cases of 48/8Z, 63,385 cases of 48/1P, 295,798 cases of 24/2½, 1,310,937 cases of 6/10, and 2,557,051 cases of miscellaneous tin and glass.

Gerber Buys Curtice Plant

Curtice Brothers Co. has announced the sale of its Rochester (N. Y.) plant to Gerber Products Co., Fremont, Mich. Gerber will take over the plant on January 1, 1951.

INSECTICIDES

Food and Drug Pesticide Tolerance Hearings

Following is a summary, prepared by Association Counsel and staff, of the proceedings at the FDA hearing on insecticide tolerances from February 13 through February 17, 1950.

After a two-week recess, the Insecticide Tolerance Hearings under the auspices of the Food and Drug Administration of the Federal Security Agency resumed on February 13, 1950, in Washington, D. C.

The immediate point of interest in the hearings continues to be the necessity for the use of insecticides. Testimony previously given on this issue had come from the U. S. Department of Agriculture but this week representatives of state agricultural agencies began to make their appearance. A noticeable difference in the testimony has been the fact that in some respects it has become more detailed and specific. An increasing amount of exact information as to the practices and needs of the individual grower has gone into the record. However, the over-all import of the testimony has continued to be the same; namely, that insecticides are a necessity in order to insure an economical and dependable supply of fruits and vegetables.

The testimony for the entire week was contributed by representatives from the two Pacific Northwest states, Washington and Oregon. It was begun by Fred Overley, horticulturist and superintendent of the Washington State Tree Fruit Experiment Station at Wenatchee, Wash. His testimony was first concerned with the importance of fruits and vegetables in the agricultural field in the State of Washington. He described the size and value of the apples, pears, prunes, raspberries, peaches, apricots, grapes, loganberries, cherries, strawberries, cranberries, hops, wheat and potatoes which are grown in Washington and said that their satisfactory cultivation was impossible without the use of chemicals. In 1948 the value of apples, pears, peaches and apricots alone which were grown in the State of Washington was well over $100,000,000. The total amount of fruit which is annually packed in Washington is approximately one-fifth of the total amount packed in the United States.

The second point of Mr. Overley's testimony dealt with the development of a Washington State spray program. The program has undergone changes as new insecticides have been developed. Some of the early insecticides such as the arsenates, cryolite, nicotine bentonite and various oils caused fruit and plant injury. They also resulted in some undesirable residues on the fruit, and washing experiments were carried out with varying success to reduce these residues within permissible limits.

In 1944 new chemicals such as DDT were used with better results. In 1945 DDT was used in greater amounts and when used gave the best control of the codling moth that had ever been obtained. DDT residues varied with types of application—in some cases the residues were less than 7 ppm and in other cases they were more. In 1947 DDT and selocide gave excellent control of codling moths and mites. DDT, when used alone, gave good control of the codling moth but not of the mites. DDT in combination with parathion also gave excellent control of the codling moth and mites. Other new insecticides are still undergoing tests.

The witness gave in detail the 1950 spray recommendation of the State of Washington. He placed particular emphasis upon the danger of pear psylla infestation and the fact that parathion seems to be its only effective control.

The witness next considered the problem of spray methods and programs. The newer insecticides such as DDT and parathion have resulted in cheaper spraying costs and yet have produced better fruit production results. They can be applied fewer times and do not cause plant or foliage injury such as the arsenates. DDT may cause some soil toxicity and experiments are continuing in an effort to overcome this problem.

Mr. Overley briefly discussed some information on results of spray residue experiments on apples conducted this past year in the Yakima Valley in Washington. The fruit samples were obtained from the leading fruit packing houses in the area. The Claborn method was used in determining DDT residues and the Averell-Norris method in analyzing parathion. The parathion residues ranged from .0 to a high of .16. The DDT residues ranged from .0 to 13.3. There was no information as to the methods and rates of application used in applying the sprays. The apple samples were just taken at random from the various commercial packing houses.

Mr. Overley also gave a summary of the various individual recommendations of Washington entomologists and pathologists. This was a long detailed report of their opinions as to the desirability of 45 different chemicals.

The second witness was W. J. O'Neill, assistant entomologist of the Washington State Tree Fruit Experiment Station at Wenatchee, Wash. He has specialized in work involving orchard pests and his statement was mainly concerned with the necessity for use of chemicals in successful orchard cultivation.

Mr. O'Neill began his testimony by reporting the results of an experiment for control of the codling moth which compared insecticidal sprays to cultural controls. The percent wormy fruit in the orchard using insecticide sprays was 1.97 as compared to 89.23 wormy fruit in the orchard which used only culture controls. He also reported on control experiments for the oriental fruit moth with the conclusion that it can be controlled only with chemicals.

He said that the San Jose Scale can cause as much as a 50 percent loss in apple crops. Petroleum oil has been used as a control but causes some plant injury as does lime sulfur. Pacific, European Red, Two Spot, Russet and other mites have successively infested the Washington area. Because of their varying susceptibilities and ability to withstand insecticides, a variety of insecticides must be available.

In the course of his testimony, Mr. O'Neill discussed aphids and pear psylla as they attack apples and pears, and also the cherry fruit fly, black cherry aphid, mites, cherry slugs and shot-hole borer as they attack cherries. He said that DDT and parathion can control the shot-hole borer but if DDT is the control applied it must be used in conjunction with an acaricide for control of the mites. He also described the above insects and their infestations of peaches, apricots and prunes. Additional insects, the infestations of which he described, were the twig-borer and cat face insects. The latter can be controlled with DDT, BHC or parathion.

Mr. O'Neill again stressed the necessity of having available as wide a choice as possible of insecticides for control of these pests. He also said that the results of the insecticide experiments conducted at the Washington Tree Fruit Experiment Station closely paralleled the work that had been previously reported by Dr. Newcomer of the USDA. Mr. O'Neill said that insecticides are tested experimentally for three years before they are permitted to be recommended for use by a grower except in case of an emergency. The criteria followed in determining whether an insecticide should be recommended are (1) high insecticide effectiveness, (2) lack of phytotoxic qualities, (3) availability, (4) lack of potential soil toxicity, (5) high specificity, (6) absence of deleterious effect on the food product, and (7) noxious effect on obnoxious insects and beneficial effect on others. The witness said that insecticides may be phytotoxic to some plants and not to others. This presence or lack of phytotoxicity is fully explored before an insecticide is recommended.

The last witness from the State of Washington was Kenneth C. Walker, a chemist in charge of research on spray residues at the Tree Fruit Experiment Station at Wenatchee. He discussed the results of spray residue experiments on lead arsenate, cryolite, DDT, parathion, methoxychlor and selenium. He described the residue ranges on the insecticides as found in various samples and then the removal results obtained by washing the fruit with 1½ percent HCL at differing temperatures, with sodium silicate followed by HCL (tandem wash) and with caustic solutions. The report was detailed and fully supported with documentary data. It covered a period of time ranging from 1946 to the present.

Mr. Walker's research shows that apples sprayed with lead arsenate which left residues ranging from 0.095 to 0.846 grains per pound when washed with 1½ percent HCL at 90° to 110° F. will have the residue reduced to a range of 0.004 to 0.200 grains per pound. The tandem wash resulted in a residue reduction with a range of 0.004 to 0.083 grains per pound.

Similar results were obtained from experiments conducted with cryolite and cryolite combined with naphthalene acetic acid. Unwashed apples sprayed with cryolite and 3½ gallons of naphthalene acetic acid per acre had an average residue of 0.196 grains per pound which an HCL wash reduced to 0.039 or an 80 percent removal. It was also found that addition of oil to the washing solution did not aid in the removal of fluorine spray residue from Winesap apples.

Mr. Walker's first research on DDT residues began in 1946 when 8 samples of commercially grown fruit sprayed with DDT were tested and residues on unwashed fruit were found to range from 2.7 ppm to 13.7 ppm. When washed with 1½ percent hydrochloric acid at 100° F. the residues were reduced to 2.8 ppm and 8.0 ppm respectively. In the same year, tests of 296 samples of experimentally grown fruit sprayed with DDT disclosed residues on the unwashed fruit that average 9.0 ppm. After washing with 1½ percent hydrochloric acid at 100° F. the residues averaged 7.4 ppm. A sodium silicate wash reduced the residue to 6.5 ppm and a tandem wash gave an average residue of 6.3 ppm. The percentage removal of the three washes was 17.8 percent for the hydrochloric wash, 28 percent for the 60 lbs. of sodium silicate at 100° F. and 30 percent for the tandem wash.

In 1947, 98 samples of apples and 4 samples of pears were collected from commercial packing houses and DDT residue tests were run on them. The DDT residue on the apples ranged from 0.9 ppm to 18.4 ppm and on the pears it ranged from 0.6 ppm to 1.5 ppm.

An overhead water sprinkling experiment showed that five acre inches of water in a 24-hour period did not appreciably reduce the DDT residue adhering to the fruit.

In 1949, in order to determine the residue removal effect of commercial washing, fresh fruit samples, both washed and unwashed, were taken and DDT residue determined by the Claborn method. The washing gave an average removal of 9.4 percent. Also in 1949, 922 apple samples and 115 pear samples were collected from growers and DDT residues were determined. The apples showed residues ranging 0.0 ppm to 10.8 ppm and the residue on the pears ranged from 0.1 ppm to 6.3 ppm.

An experiment to determine DDT residue reduction with the passage of time in cold storage conditions showed residues declining from 2.2 ppm to 1.3 ppm.

Parathion residues were first tested in 1948. Seventy-four apple samples disclosed residues ranging from 0.0 ppm to 0.12 ppm, 115 pear samples had residues ranging from 0.01 ppm to 0.05 ppm and another group of 992 apple samples had residues ranging from 0.01 ppm to 0.17 ppm.

To demonstrate in a more detailed manner the type of information which Mr. Walker put into the hearing record, an experiment of his concerning parathion residue on Delicious apples is reproduced in full.

Delicious Apples	Last Application	Fruit Analyzed	Residue
4 cover sprays—2½ lbs. per 100 gals.	Aug. 3	Nov. 2	0.18
4 cover sprays—1 lb. per 100 gals.	Aug. 3	Nov. 2	0.05
3 cover sprays—4 lbs. per 100 gals	Aug. 3	Nov. 2	0.60
3 cover sprays—3 lbs. per 100 gals	Aug. 3	Nov. 2	0.19
3 cover sprays—2 lbs. per 100 gals	Aug. 3	Nov. 2	0.18
3 cover sprays—1 lb. per 100 gals.	Aug. 3	Nov. 2	0.10

Other parathion experimental results reported by Mr. Walker were (1) fruit sprayed with parathion had almost no residue loss while kept in cold storage because its high volatile rate was greatly diminished by the low temperature, (2) fruit size has no significant effect upon DDT and parathion residue, (3) 81 percent to 83 percent of parathion spray residue was lost from the surface of fruit sprayed with one pound and four pounds of wettable powder after 12 to 13 days and 94 percent to 100 percent was lost in 30 to 32 days and (4) 1 pound of 25 percent wettable parathion powder per 100 gallons of water when used on Elberta peaches had residues of 1.63 ppm seven days after application and 0.00 ppm 71 days after application.

Methoxychlor when used on sweet cherries at the rate of 3 pounds of 50 percent methoxychlor per 100 gallons of water and applied 28 days before harvest had a residue average, based on 3 samples, of 0.44 ppm. When used as a 5 percent dust under the same conditions it had a residue of 0.0 ppm.

The last insecticide residues reported on by Mr. Walker were those of selenium. He said significant amounts were found on and in the peel of sprayed fruit as compared to unsprayed fruit.

In addition to this discussion of insecticide residues, Mr. Walker discussed caustic washes. He said that the major portion of DDT spray residue is apparently concentrated on the waxy outer surface of apples. These waxes are fatty acid in nature and so experiments were conducted to determine if they could be changed into water soluble, easily rinsed, compounds by the use of strong caustics. The experiments were conducted to determine the concentration of caustic, temperature and the length of immersion time that would reduce the residue and yet leave the fruit in suitable condition for processing.

The results of the experiments indicated that concentrations of caustic at 2 percent are more effective than concentrations of one percent; that temperature at 200 to 210 degrees F. were not appreciably more effective than 185° F.; and that increasing the immersion time from two minutes to 2½ to 3¾ minutes was not appreciably effective.

Another experiment was conducted whereby apples were washed in 1½ percent caustic at 160° F. for a period of 2 minutes and 45 seconds. The fruit was then washed and rinsed in a shaker-type washer. The fruit was cored and halved, prepared and cooked under pressure to make applesauce. The cooked apples were strained through a 0.033 inch screen, sealed under vacuum and the applesauce was sterilized for 20 minutes at 212° F. Mr. Walker concluded from this experiment that,

"By use of strong caustic baths at high temperatures and prolonged immersion times, we find that the DDT spray residue can be removed. From the experimental work we have conducted it would seem probable that unwashed fruit carrying a relatively high DDT spray residue could be so treated that applesauce could be produced that will contain a relatively low quantity of DDT . . . this washing procedure is not adaptable, is not usable for fruit intended for fresh fruit market."

If there were any undue delay between the washing and processing, spoilage would start. Of specific interest was the fact that the screen waste of Winesap apples showed a DDT residue of 82 ppm.

Mr. Walker was the last witness from the State of Washington and fol-

lowing the conclusions of his statement, testimony was begun by witnesses from Oregon. The first witness was Dr. D. C. Mote, professor and the head of the Department of Entomology of Oregon State College. He is also in charge of the Entomology Department of the Oregon State Experiment Station. Dr. Mote began testimony on insects and pests of small fruits and nuts. He first gave a summary of Oregon recommendations for insect control of the following vegetable specialty crops.

Crops	Insecticides
1. Fruit vegetables, such as tomatoes, eggplants, peppers.	DDT Nicotine Calcium arsenate Sabadilla
2. Leafy vegetables, such as asparagus, spinach.	DDT Rotenone Nicotine Pyrethrum
3. Brassica Crops broccoli, cabbage.	Nicotine Rotenone DDT Pyrethrum Calcium arsenate Cryolite
4. Root and Tuber crops beets, carrots.	DDT Calomel Calcium arsenate Rotenone DDT Sulfur DDT oil
5. Edible Legume Crops beans, peas.	Carbon disulphide DDT Nicotine Rotenone Methoxychlor
6. Sweet corn	Calcium arsenate Cryolite Pyrethrum oil
7. General Pests of vegetable and specialty crops.	Arsenical baits Fluoride baits Fluosilicate baits Metaldehyde—calcium arsenate bait Calcium arsenate Summer oil sprays Sulfur dusts Ethylene dibromide DDT
8. Specialty crops hops, mint.	Nicotine DN dust D-4 DN dust D-8 Cryolite DDT Arsenate, fluoride or fluosilicate baits

In addition to the recommended insecticide controls for pests of these crops, there are other insecticides which are in some additional use although they are not officially recommended. Among them are parathion, TEPP, lindane, toxaphene, chlordan and methoxychlor. Dr. Mote said methoxychlor, piperonyl cyclonene, TEPP, parathion, TDE, chlordan, aldrin, dieldrin, EPN, lindane, toxaphene, and cryolite were showing experimental promise in controlling specific pests.

The next Oregon witness was A. P. Steenland, assistant plant pathologist at the Oregon Experiment Station and plant pathology specialist with the Oregon Extension Service. He introduced detailed testimony showing crops, their diseases, fungicides recommended, fungicides in use but not recommended and those which show experimental promise. For control of stone fruit diseases such as brown spot, peach leaf curl and powdery mildew, Mr. Steenland recommended bordeaux, ziram, ferbam, phygon and sulfur. For control of apple and pear diseases, the same fungicides were recommended with the addition of insoluble copper. Ziram, bordeaux, copper and lime sulfur were recommended for use on small fruits and berries and sulfur on grapes.

For vegetable diseases, Mr. Steenland recommended use of bordeaux, copper, ziram, sodium chloride, and zineb; and bordeaux, insoluble copper and sulfur for nut diseases.

The reasons for the recommendations of these fungicides is the effectiveness of their control plus favorable cost and availability factors. Mr. Steenland said that there have been no fungicide residue studies conducted in Oregon, with the exception of sulfur residue on beans when used to control white mold.

The third witness from Oregon was Leroy Childs, superintendent of the Hood River Station and entomologist of the Oregon Experiment Station. His experience and testimony was largely confined to Hood River Valley problems.

He discussed the codling moth on apples and pears and said that DDT was a more effective control than other insecticides such as lead and calcium arsenate, cryolite and phenothyazine. Mr. Childs also gave testimony concerning control of the wooly apple aphids with parathion and BHC and residue data on insecticides used on apples and pears. His statement was detailed and specific as were all the reports from the Pacific Northwest witnesses and it added much to the over-all case for insecticide necessity.

Mr. Childs also gave results of insecticide residue removal by washing with HCL 1.6 percent plus vatsol, with vatsol alone and with balab. He concluded that an average maximum of 30 percent removal of DDT residue was the most that could be expected.

His statement was concluded with some testimony concerning orchard mites and the pear psylla. Emphasis was placed upon the need for continued development of new insecticides and the need for regulations to make provision for such further development.

The final testimony of the week was given by Jack Compton, an Oregon small fruit and vegetable grower for 25 years, representing the Gresham Berry Growers Association in Oregon. He was the first witness in the hearings who was not representing a state or federal agency. The main point of his testimony was essentially the same as that of previous witnesses—namely that insecticides are necessary for successful crop production. Mr. Compton emphasized that comparative costs and availability of insecticides are of prime importance to growers and their choice of insecticides. He said there should be a wide variety of choice.

This concluded the testimony from the Pacific Northwest, and also ended the hearings for the week. They will be resumed on Monday, February 20, with testimony by witnesses from California, Pennsylvania, and Virginia.

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